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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC0057	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA416
International application No. PCT/IB2004/002095	International filing date (day/month/year) 23.06.2004	Priority date (day/month/year) 03.07.2003	
International Patent Classification (IPC) or national classification and IPC A63F9/00			
Applicant GIGLIA, BALDASSARE			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 7 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 31.01.2005		Date of completion of this report 31.10.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Shmonin, V Telephone No. +49 89 2399-2043	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IB2004/002095

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1, 4-13	as originally filed
2, 2a, 3	received on 10.05.2005 with letter of 03.05.2005

**Claims, Numbers**

1-20	received on 10.05.2005 with letter of 03.05.2005
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**Drawings, Sheets**

1/10-10/10	as originally filed
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- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☒ The amendments have resulted in the cancellation of:
- ☒ the description, pages 2,3
  - ☒ the claims, Nos. 1-34
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify)*:
  - ☐ any table(s) related to sequence listing *(specify)*:
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing *(specify)*:
  - ☐ any table(s) related to sequence listing *(specify)*:

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IB2004/002095

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-20
	No: Claims	
Inventive step (IS)	Yes: Claims	1-20
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following document:

D1: AU 563 452 B (BARR D E) 9 July 1987 (1987-07-09)

The document D1 is regarded as being the closest prior art to the subject-matter of the independent claim 1 and shows an amusement apparatus for enabling the construction of three-dimensional structures for the purpose of achieving a balanced condition:

The subject-matter of claim 1 differs from this known D1 in that positioning and abutment surfaces of a control means comprise the free top ends of at least three rods whereby said at least three rods have angularly staggered bottom ends which are fitted on a movable sleeve.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as how to provide an amusement device for seeking an equilibrium of a body which would enable reaching an equilibrium of a body in an easy and stepwise manner thereby allowing young or elderly people to use the amusement device.

The solution to this problem proposed in claim 1 of the present invention is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:  
none of the prior art documents discloses control means which are fitted on one movable element.

Claims 2-20 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claims 1-20 also meet the criteria of industrial applicability.

## AMENDED CLAIMS

1. A game device, particularly aimed at seeking the equilibrium of a body, comprising a stationary base (7), a support body (2), backing means (6) for supporting said body (2) on said base (7), allowing free swinging or tilting thereof, a plurality of seats (4) associated to said body (2), a plurality of pieces (5) of predetermined weights, which may be removably inserted in said seats (4) in such positions as to hold said body (2) in a static equilibrium position (P), control means (8) which selectively interact with said body (2) to hold it at least temporarily in said equilibrium position (P) upon insertion of said pieces (5), both/either to limit its inclination relative to said base (7), thereby preventing said pieces (5) from coming out and falling from said seats (4) and/or to check if the equilibrium position (P) has been reached, said control means (8) including positioning and abutment surfaces which may be moved between body positions of engagement and disengagement of said body (2) for interaction therewith, characterised in that said positioning and abutment surfaces comprise the free top ends (18) of at least three rods (17), said at least three rods (17) having angularly staggered bottom ends which are fitted on a movable sleeve (19).

20 2. Game device as claimed in claim 1, characterized in that said free top ends (18) are shaped in such a manner as to engage the bottom surface (16) of said board (T), when said sleeve (19) is partly raised.

25 3. Game device as claimed in claim 1, characterized in that said sleeve (19) is rotatably and slideably mounted on a load bearing column (9), which is integral with said base (7).

30 4. Game device as claimed in claim 3, characterized in that both said load bearing column (9) and said sleeve (19) have respective inclined edges (20, 21), which are inclined with respect to the horizontal and define cam means in mutual interaction upon rotation of said sleeve (19) relative to said column (9).

5. Game device as claimed in claim 4, characterized in that said sleeve (19) has a substantially radial operating rod (22) which may be driven by a player to rotate said sleeve (19) about the axis (V) of said load bearing column (9), so as to cause the interaction between said cam means (20, 21) and the resulting axial displacement of said sleeve (19), and to move the free ends (18) of said rods (17) between said positions of engagement and disengagement.

6. Game device as claimed in claim 1, characterized in that said body (2) is a substantially flat board (T) having a top surface (3), a bottom surface (16) and an axis (V) substantially perpendicular to said surfaces (3, 16) and passing through its center of gravity (G).

7. Game device as claimed in claim 1, characterized in that said backing means (6) include a point support member (12, 23) which defines a point for omnidirectional tilt or rotation of said body (2) about a point that substantially coincides with its center of gravity (G).

8. Game device as claimed in claim 7, characterized in that said point support member (12) is placed on the top of a load bearing column (9).

9. Game device as claimed in claims 6 and 8, characterized in that said point support member (12) is a ball (12) or a conical or frustoconical end of said support column (9), which may be engaged in a concave seat, formed on the bottom surface (16) of said board (T) in the vicinity of its center of gravity (G).

10. Game device as claimed in claim 7, characterized in that said point support member (12) comprises at least one substantially vertical flexible hanging member (23).

11. Game device as claimed in claim 10, characterized in that said single flexible hanging member (23) has a bottom end (24) anchored to said board (T) at the center of gravity (G) thereof and the other end (25) anchored to a support

frame (26) that is integral with said base (7).

12. Game device as claimed in claim 1, characterized in that said backing means (6) include a linear support member (27, 28; 23', 23'', 23''') which defines a swinging axis for said body (2) substantially passing through its center of gravity (G).

13. Game device as claimed in claims 4 and 12, characterized in that said at least one linear support member comprises two pivots (27, 28) anchored to said board (T) along an axis (H) that passes through the center of gravity (G) of the latter, said pivots (27, 28) being pivotally supported in corresponding holes (29, 30) of a support frame (26) which is integral with said base (7).

14. Game device as claimed in claim 12, characterized in that said point support member (6) comprises a plurality of substantially vertical flexible hanging members (23': 23'', 23'''), having equal lengths and respective bottom ends (24', 24'', 24''') anchored to said board (T) and respective top ends (25', 25'', 25''') anchored to said support frame (26) that is integral with said base (7).

15. Game device as claimed in claim 14, characterized in that the bottom ends (25', 25'', 25''') of said plurality of flexible hanging members (23', 23'', 23''') are aligned along a transverse axis containing the center of gravity (G) of said board (2).

16. Game device as claimed in claim 1, characterized in that said pieces (5) have substantially the same volume and appropriately different weights, according to a predetermined algorithm.

17. A game device as claimed in claim 16, characterized in that said algorithm is expressed by a formula such as  $P_n = P_1 + P_2 + \dots P_{n-1}$ .

18. Game device as claimed in claim 1, characterized in that said pieces (5)

have different colors depending on their weights, to facilitate memorization thereof by the players.

19. Game device as claimed in claim 1, characterized in that said pieces (5)  
5 are substantially spherical bodies, that are filled with heavy materials to change their overall weight.

20. Game device as claimed in any preceding claim, characterized in that  
its parts are made from materials selected from the group consisting of plastic  
10 materials, PVC or polyurethane, wood, plexiglas, and metals such as aluminum or steel or alloys thereof.



Other games, based on the equilibrium of a board having housings for pieces or weights of equal or different weight are also disclosed in patents US-A-4200292, US-A-4389049 and US-A-4638999.

- 5 From AU-B-563452, on which is based the preamble of claim 1, is known an amusement apparatus for enabling the construction of three-dimensional structures comprising a stationary base, a support body, backing means for supporting the body on the base allowing free tilting thereof, a plurality of seats associated to the body, a plurality of pieces which may be removably inserted in  
10 said seats in such positions as to hold the body in a static equilibrium position. The apparatus also comprises control means which selectively interact with the body to hold it at least temporarily in said equilibrium position upon insertion of the pieces. More particularly, the control means comprise positioning and abutment surfaces including a plurality of pegs each having an end portion interacting with a  
15 respective shaft which is movable to adjust the position of the peg.

Thus, the stability control of the support body relies on the fine adjustment of each shaft controlling the position of the pegs placed at different sides of the body, thus resulting in a very laborious and tedious activity for the player. This could be even  
20 less appealing for very young players which could be bored in a short time abandoning the game.

Similar equilibrium game devices are known from US-A-4638999, US-A-3402929 and US-B1-6318726 which exhibit the same disadvantages noticed above.

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Moreover, in all the above game devices, the board with the housings for the pieces may unrestrictedly swing about a center axis which passes through the center of gravity. Therefore, above a certain swinging angle, the pieces may come out from their seats and fall down, thereby completely losing their original  
30 arrangement and forcing the players to start anew their seek for the equilibrium condition. Furthermore, in these prior art devices, once a quasi-equilibrium position has been reached, the board cannot be temporarily disposed in a

horizontal position to check if equilibrium may be approached by adding additional pieces.

### Summary of the invention

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An object of the present invention is to obviate the above drawbacks, by providing a game device which may be simply and readily used even by young or elderly people.

- 10 A particular object is of providing a game device which allows to memorize step by step the equilibrium or non-equilibrium condition that has been just reached without risk of losing it due to the board being turned over.

- A further object is of providing a game device that allows to simply and effectively  
15 check if the arrangement of the pieces on the board provides an equilibrium condition.

- These objects, as well as other objects that will be better apparent hereafter, are fulfilled by a game device for seeking the equilibrium of a body which, according to  
20 claim 1. The device comprises control means including positioning and abutment surfaces which may be moved between body positions of engagement and disengagement of said body for interaction therewith. According to the invention, the positioning and abutment surfaces comprise the free top ends of at least three rods, said at least three rods having angularly staggered bottom ends which are  
25 fitted on a movable sleeve.

Thanks to this arrangement, the players may seek the equilibrium of the support body in a relatively easy and stepwise manner, without losing the memory of the previous steps.

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Preferably, the backing means include a point support member which defines a point for omnidirectional tilt or rotation of the body about a point that substantially

coincides with its center of gravity.

Alternatively, the backing means may include a linear support member which defines a swinging axis for the body, substantially passing through its center of gravity.

In a preferred embodiment, the plan shape of the board is selected from the group consisting of polygons, circles, ellipses, closed curves.

- 10 In another preferred embodiment, the body is a three-dimensional object with a substantially convex bottom portion defining a bottom portion supported by the base.

Suitably, the control means include positioning and abutment surfaces which may

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